REMARKS

Two claims, numbered 13 and 14, are pending in the present application. In the action, both have been rejected on the basis of the prior art. The Examiner is respectfully requested to reconsider claims 13 and 14 in view of the discussion to follow.

Claim 13 is directed toward a stereoscopic microscope which comprises a common close-up optical system that faces an object to be viewed. The close-up optical system has a single optical axis.

The stereoscopic microscope also comprises a pair of imaging optical systems that take object light rays passing through different regions of the close-up optical system, respectively, to form a pair of images. The optical axes of the imaging optical systems are parallel to the optical axis of the close-up optical system.

The stereoscopic microscope further comprises an image-taking device that captures the pair of images formed on an image-taking surface thereof.

The close-up optical system has a focal length greater than 500 mm. As discussed in the specification beginning at page 27, line 9, and continuing through page 29, line 20, the need for such a long focal length arises from a desire to obtain a high-resolution image with the stereoscopic microscope. To obtain such an image, one uses a charge-coupling device (CCD) having a small pixel size. However, as pixel size is reduced, the sensitivity of a CCD decreases. As a consequence, more light input from the object being viewed is required to obtain the high-resolution image being sought.

In order to gather the light required, the close-up optical system needs to have a large diameter. However, the larger the diameter, the more spherical aberration is likely to reduce the quality of the images obtained using the stereoscopic microscope. Spherical aberration may be

reduced by increasing the focal length of the close-up optical system. In the invention claimed in claim 13, this is achieved by using a close-up optical system having a focal length greater than 500 mm.

Claim 14 is a dependent claim further limiting the subject matter claimed in claim 13 by specifying with greater particularity the elements of the imaging optical systems.

Turning now to page 2 of the action, claims 13 and 14 were rejected under 35 U.S.C. §103(a) as being unpatentable for obviousness over U.S. Patent No. 5,015,081 to Kitajima et al. ("Kitajima") in view of U.S. Patents Nos. 5,825,532 to Mochizuki et al. ("Mochizuki") and 4,525,042 to Muchel ("Muchel").

Kitajima discloses a binocular microscope which has an objective optical system for receiving a beam of rays from an object and changing it into a parallel pencil of rays, a relay optical system for relaying the parallel pencil of rays coming from the objective optical system, and an ocular for receiving the beam of rays coming from the relay optical system. The focal length of the objective lens 10 of the objective optical system T, which lens is analogous to the close-up optical system of the present invention, is not disclosed in Kitajima, nor is spherical aberration mentioned therein.

Muchel discloses an optical system of variable focal and back-focal length for operation microscopes. In the optical system, an objective of fixed focal length, the objective being analogous to the close-up optical system of the present invention, is combined with an optical system of variable focal length consisting of two lens groups, the first lens group of which is displaceable. The objective projects a real, virtual or infinity image of the object and the displaceably arranged lens group of the optical system of variable focal length images the image projected by the objective into the focal point of the second lens group of the system. The

second lens group consists of two parts which are displaceable in the direction of their optical axis in order to adjust the focal length of the microscope. The focal length of the objective is stated to be 225 mm (see Muchel, column 2, line 20). The focal length of the whole optical system may be varied between 57 mm and 1000 mm (see Muchel, column 3, line 7).

Mochizuki discloses a microscopic system integrated with wide-screen television in which medical information is combined with an image signal picked up by an imaging device including a microscope, a wide-screen television camera and an adapter for mounting the camera on the microscope.

The Examiner has taken the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the microscope of Kitajima to include the imaging system optical adapter of Mochizuki to be able to record the images. The Examiner further states, beginning at line 13 on page 3 of the action, that Muchel teaches an optical system for a stereomicroscope with variable focal lengths of 57 mm to 1000 mm, and that it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the close-up optical system of Kitajima to achieve a focal length of greater than 500 mm as suggested by Muchel in order to accommodate a large working distance.

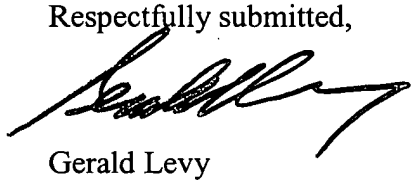
It is respectfully submitted that the Examiner has simply misunderstood Muchel. The "Group I" lens in the Muchel invention is a fixed lens with a focal length of 225 mm, as is clear in the description that "Group I is the main objective of the operation microscope. It has the focal length f_o = 225 mm" (see Muchel, column 2, lines 19 and 20). The focal length 57 mm to 1000 mm referred to by the Examiner is the total focal length of the whole optical system I-III of the stereoscope, as is clear from the description that "Fig. 2 shows that it is possible to change

the focal length of the whole optical system between 57 mm and 1000 mm" (see Muchel, column 3, lines 6 through 15).

Accordingly, Muchel does not disclose or suggest the close-up optical system of the present invention, that being a close-up lens having a focal length of greater than 500 mm. Moreover, Muchel discloses a variable working distance of 150 mm to 400 mm as the description (Muchel, column 3, lines 11 through 15) states that it is also possible to adjust the working distance so between 150 mm and 400 mm by moving lens groups II and III for an elected focal length f of the operation microscope. However, the focal length of the Group I lens, analogous to the present close-up lens, is a short length of 225 mm, which cannot eliminate spherical aberration from that lens.

In view of the preceding discussion, the Examiner is respectfully submitted to reconsider his rejection of claim 13, as well as that of claim 14 which depends therefrom, and to allow claims 13 and 14 at an early date.

Respectfully submitted,



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